TOY STORE APPLICATION

22AD901 – ADVANCED APPLICATION DEVELOPMENT

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BONAFIDE CERTIFICATE

Certified that this project report titled **"TOY STORE APPLICATION"** is the bonafide

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ABSTRACT

The Toy Store application is designed to address the growing need for an accessible, comprehensive, and personalized platform for toy enthusiasts and retailers alike. In today's fast-paced world, finding the right toys can be challenging due to various constraints such as time, location, and the availability of quality products. Traditional toy stores often struggle with inventory limitations, scheduling conflicts for events, and the inability to cater to the diverse needs of a global audience.

Without a centralized digital solution, toy shoppers face several challenges, including the lack of consistency in product availability, difficulty in finding toys that match their preferences and needs, and limited access to high-quality, age-appropriate options. Furthermore, retailers find it difficult to manage their inventory, reach a wider audience, and provide personalized shopping experiences to their customers.

The Toy Store application solves these problems by offering a user-friendly platform that connects customers with a wide range of quality toys, provides curated selections tailored to different age groups and preferences, and offers flexible shopping options. The app includes features such as personalized recommendations, detailed product information, and independent toy reviews, ensuring that users can enjoy a consistent and enjoyable shopping experience from anywhere in the world.

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LIST OF ABBREVIATIONS

S. No	ABBREVIATIONS	EXPANSION
1	ADL	Activities of Daily Living
2	RAM	Random Access Memory
3	GB	Giga Bytes
4	VS	Visual Studio
5	OS	Operating System
6	HTTP	Hyper Text Transfer Protocol
7	JPA	Java Persistence API
8	API	Application Programming
9	JDBC	Java Database Connectivity
10	SQL	Sequential Query Language
11	UI	User Interface
12	DOM	Document Object Model
13	JSX	Java Script XML
14	OTP	One Time Password
15	UML	Unified Modelling Language
16	DFD	Data Flow Diagram
17	FAQ	Frequently Asked Questions

CHAPTER 1

INTRODUCTION

1.1 OVERVIEW

The Toy Store application is a comprehensive digital platform designed to bridge the gap between toy enthusiasts and retailers. It aims to provide an accessible, personalized, and enjoyable shopping experience for users worldwide. Here's an in-depth overview of the application:

1.1.1 Purpose and Objectives

- **Accessibility:** Offer a wide range of toys to customers regardless of their geographical location, time constraints, or specific preferences.

- **Personalization:** Provide tailored toy recommendations based on individual user preferences, age groups, and interests.

- **Community Building:** Foster a community where customers and retailers can interact, share reviews, and stay updated on the latest toys and trends.

1.1.2 Target Audience
- **Toy Shoppers:** Individuals ranging from parents and caregivers to toy collectors seeking quality toys, product information, and convenient shopping options.

- **Toy Retailers:** Toy store owners and sellers looking to reach a wider audience, manage their inventory, and provide a personalized shopping experience to their customers.

In addition to the comprehensive catalog, the platform will provide personalized recommendations based on user preferences, age, and interests, ensuring that users can find toys that best suit their needs and tastes.

1.2 COMPONENTS OF SYSTEM

1. **Home:**
   - **Overview:** Acts as the landing page, showcasing featured toys, customer testimonials, and the latest updates.
   - **Navigation:** Provides easy access to other sections of the application.

2. **About:**
   - **Information:** Details about the Toy Store's mission, team, and values.

3. **Login/Signup:**
   - **User Access:** Secure registration and authentication system for customers and retailers.
   - **Data Protection:** Ensures user data privacy and security.

4. **Products:**
   - **Variety:** Offers a wide range of toys categorized by age group, type, and brand.
   - **Details:** Provides detailed information on toy features, pricing, and availability.

5. **Shopping Cart:**
   - **User Dashboard:** Allows users to view, manage, and update items added to their cart.
   - **Checkout:** Streamlined process for reviewing and finalizing purchases.

6. **Payment:**
   - **Integration: Secure** payment gateway supporting multiple payment methods.
   - **Transaction Security:** Ensures compliance with financial regulations and standards.

7. **Retailer Dashboard:**
   - **Management Tools:** Enables retailers to manage inventory, update product listings, and track sales.
   - **Analytics:** Provides insights into sales performance, customer preferences, and stock levels.

8. **Admin Dashboard:**
   - **Control Center:** For administrators to oversee platform operations, manage users and retailers, and monitor content.

9. **Product Reviews:**
   - **Content Library:** Extensive collection of user reviews and ratings for various toys.
   - **Quality Assurance:** Helps customers make informed decisions based on the experiences of others.

10. **Toy Images and Descriptions:**
    - **Resource Hub:** Detailed images of toys accompanied by descriptions, specifications, and recommended age groups.
    - **Learning Tool:** Helps customers understand the features and benefits of each toy.

11. **Feedback:**
    - **User Engagement:** Allows customers to provide feedback on products, shopping experience, and overall platform.
    - **Improvement:** Facilitates continuous improvement based on customer insights.

CHAPTER 2
SYSTEM ANALYSIS

EXISTING SYSTEM

In the current landscape, toy shoppers and retailers primarily rely on the following systems:

1. **Physical Toy Stores:**

   o **In-Person Shopping:** Traditional toy shopping conducted at physical store locations, where customers browse and purchase toys in person.

   o **Memberships and Loyalty Programs:** Customers often enroll in store memberships or loyalty programs to receive discounts and rewards.

2. **Online Marketplaces and Websites:**

   o **Product Listings:** Users can browse and purchase toys through online marketplaces like Amazon or dedicated toy store websites.

   o **Customer Reviews:** These platforms often feature customer reviews and ratings to help shoppers make informed decisions.

   o **Subscription Services:** Some websites offer subscription boxes or curated toy selections delivered monthly or quarterly.

3. **Mobile Apps:**

   o **Shopping Apps:** Various mobile applications provide users with access to a wide range of toys, along with features like personalized recommendations and wish lists.

   o **Community Features:** Some apps include social features, allowing users to share reviews, create lists, and connect with other toy enthusiasts.

2.1.1 DRAWBACKS OF THE EXISTING SYSTEM

1. **Physical Toy Stores:**
2.

- **Limited Accessibility:** Customers need to be physically present at the store, which can be challenging due to geographical limitations, time constraints, or mobility issues.

- **Inventory Limitations**: Physical stores may have limited stock, leading to unavailability of certain toys.

- **Inconvenient Shopping Experience:** Shopping in person can be time-consuming, especially during busy seasons or in crowded stores.

- **Higher Costs:** Physical stores may have higher prices due to overhead costs, and customers might miss out on online deals and discounts.

3. **Online Marketplaces and Websites:**

- **Lack of Personalization:** Generic recommendations may not cater to individual preferences or specific needs, leading to a less satisfying shopping experience.

- **No Real-Time Interaction:** Customers cannot interact with retailers in real-time, limiting their ability to ask questions or get instant support.

- **Inconsistent Quality:** Product descriptions and images might not always accurately represent the toys, leading to potential dissatisfaction.

- **Limited Community Engagement:** Most platforms do not offer a space for users to share experiences, reviews, or connect with other toy enthusiasts.

4. **Mobile Apps:**

- **Generic Content**: Many apps offer a one-size-fits-all approach, which may not cater to the unique preferences of individual customers.
- **Limited Interaction:** While some apps include social features, the interaction is often limited to basic functionalities and lacks depth.
- **Inconsistent User Experience:** The quality and functionality of mobile apps can vary, leading to potential frustrations for users.

2.2 PROPOSED SYSTEM

The Toy Store application is designed to overcome these drawbacks by offering a holistic, user-friendly platform that integrates the benefits of physical stores, online marketplaces, and mobile apps while addressing their limitations:

2.2.1 Addressing the Drawbacks with the Toy Store Application

- **Accessibility**: The app allows users to practice yoga from anywhere at any time, making it more accessible than traditional studios.

- **Personalization**: The app offers tailored yoga plans based on individual goals, preferences, and progress, ensuring a personalized experience.

- **Interactive Features**: Live classes, feedback mechanisms, and trainer dashboards facilitate real-time interaction between users and instructors.

- **Comprehensive Tracking**: The app provides tools for tracking progress, setting goals, and receiving personalized recommendations.

- **Cost-Effective:** Flexible subscription plans and the ability to practice at home reduce the cost compared to physical studio memberships.

- **High-Quality Content**: A curated library of high-definition videos, detailed asana descriptions, and professional guidance ensure consistent quality.

CHAPTER 3
SYSTEM REQUIREMENTS

3.1 SOFTWARE REQUIREMENTS

    a. Operating system :   Windows 11

    b. Front End, Back End   :Visual studio code, Spring Boot

    c. Coding Language: ReactJs, Java

3.2 SOFTWARE DESCRIPTION

Fig. 3.1. VS Code Logo

Visual Studio Code, also commonly referred to as VS Code, is a source-code editor made by Microsoft, it can be used to work with Windows, Linux and macOS. Features include support for debugging, syntax highlighting, intelligent code completion, snippets, embedded Git.Users can change the theme, keyboard shortcuts, preferences, and install extensions that add functionality.

3.3.1 FRONTEND

ReactJs:-

ReactJS is a popular JavaScript library for building user interfaces, particularly for web applications. React follows a component-based architecture, where UIs are broken down into reusable components. Each component encapsulates its own logic and UI making it easier to manage and maintain complex user interfaces. React uses a virtual DOM (Document Object Model) to improve performance. Instead of directly manipulating the DOM, React creates a virtual representation of the DOM in memory and updates it efficiently. When changes occur, React compares the virtual DOM with the actual DOM and only updates the necessary parts, reducing the number of DOM manipulations and improving performance.

React uses JSX, a syntax extension that allows developers to write HTML-like code within JavaScript. JSX makes it easier to write and understand React components, as it closely resembles the final UI structure. React follows a unidirectional data flow, also known as one-way data binding. Data flows from parent components to child components via props, and child components can communicate with parent components via callbacks. This helps maintain a clear and predictable data flow in the application.

Features of ReactJs

1. **Declarative**

React makes it easy to create interactive UIs by using a declarative programming approach. Developers can describe how the UI should look based on the application state.

2. **Component-Based**

   React uses a component-based architecture, where UIs are composed of reusable and self-contained components. This makes it easier to manage and maintain complex UIs, as each component can be developed, tested, and updated independently.

3. **Virtual DOM**

   React uses a virtual DOM (Document Object Model) to improve performance. Instead of updating the entire DOM when the state changes, eact compares the virtual DOM with the actual DOM and only updates the parts that have changed.

4. **JSX**

   JSX is a syntax extension for JavaScript that allows developers to write HTML-like code within their JavaScript code. This makes it easier to create and manage UI components, as JSX code can be more readable.

5. **Unidirectional Data Flow**

   React follows a unidirectional data flow, from parent components to child components. This helps to maintain the consistency of the application state and understand the data flow in the application.

6. **React Native**

   React Native is a framework for building native mobile applications using React. It allows developers to use the same codebase to build both iOS and Android applications, saving time and effort in development.

7. **Community and Ecosystem**

   React has a large and active community of developers, which has led to the development of a rich ecosystem of libraries, tools, and resources that can be used to enhance and extend React applications.

3.3.2 BACKEND

Java

Java is a versatile, object-oriented programming language renowned for its platform independence, security, and portability. Java is a high-level, general-purpose programming language that is widely used for developing a variety of applications. Java is object-oriented, emphasizing the use of classes and objects for organizing code and data.

It boasts a comprehensive standard library with built-in classes and APIs for various tasks, from data manipulation to networking. Java enforces strong type checking, enhancing code reliability and reducing runtime errors. The language includes automatic memory management through garbage collection, simplifying memory allocation and deallocation.

The extensions used to develop my backend part of the project are,

1. **Spring Boot Extension Pack by VMware**

   This extension pack provides a set of tools and features to enhance your development experience with Spring Boot, including code snippets, syntax highlighting, and project templates.

2. **Extension Pack for Java by Microsoft**

   This extension pack includes essential tools for Java developers, such as debugging support, code navigation, and IntelliSense for Java files.

3. **Spring Boot Snippets by Developer Soapbox**

   This extension provides a collection of code snippets for commonly used Spring Boot annotations and configurations, helping you write code more efficiently.

Dependencies used to build my project are,

1. **Spring Web**

    This dependency provides the necessary components for building web applications with Spring, including controllers, request mappings, and HTTP message converters.

2. **Dev Tools**

    Spring Boot DevTools provides a set of tools to improve the development experience, including automatic application restarts, live reload, and enhanced debugging capabilities.

3. **Data JPA**

    Spring Data JPA provides support for easily working with JPA (Java Persistence API) repositories, simplifying the implementation of data access logic in your application.

4. **Spring Security Web**

    This dependency provides support for securing your web application using Spring Security, including authentication and authorization mechanisms.

5. **MySQL Driver**

    This dependency provides the JDBC driver for MySQL, enabling your Spring Boot application to connect to a MySQL database, which is crucial for applications requiring MySQL as their database solution.

CHAPTER 4

SYSTEM DESIGN

4.1 MODULE DESCRIPTION

- Class management
- Admin management
- Purchase Plan management
- User profile management

4.1.1 CLASS MANAGEMENT:-

Overview:

The Product Management module is designed to streamline the addition, organization, and administration of toys within the application. This module allows retailers to create, modify, and manage product listings effectively. It includes tools for setting product details such as name, price, stock levels, age group, and category (e.g., educational, action figures, dolls). Retailers can also upload high-resolution images, add detailed descriptions, and set inventory limits to ensure accurate stock management.

Features:

1. **Product Listing:** Retailers can add new toy products and update existing listings with relevant details such as name, description, and price.

2. **Product Customization:** Retailers can define product attributes, including category (e.g., educational, action figures), age group, and stock levels.

3. **Inventory Tracking:** The module tracks inventory levels for each product, alerting retailers when stock is low.

4. **Notifications:** Automated notifications inform retailers of low stock levels or provide updates on product status.

5. **Retailer Dashboard:** Provides a dashboard for retailers to view and manage their product listings, monitor inventory, track sales performance, and receive customer feedback.

4.1.2 ADMIN MANAGEMENT:-

Overview:

The Admin Management module is a critical component of the Toy Store application, providing administrators with the tools to oversee and manage the entire platform. This module allows the admin to manage both products and retailers, ensuring smooth operations and maintaining the quality of service. It includes features for user account management, retailer onboarding, product oversight, and platform analytics.

Features:

Product Management:

- **Product Listing Oversight:** Create new product listings with details such as name, description, pricing, and categories.

- **Access Control:** Update or modify product details, pricing, and availability.

- **Product Removal:** Remove outdated or discontinued products from the platform

4.1.3 PURCHASE PLAN MANAGEMENT:-

Overview:

The Purchase Plan Management module handles the creation, management, and processing of purchase options within the application. It offers users a variety of payment plans tailored to different needs, such as single purchases, bulk purchases, or subscription-based services. This module also integrates with payment gateways to ensure secure transactions and provides users with the ability to upgrade, downgrade, or cancel their plans as needed.

- **Features:**

  - **Plan Creation:** Admins can create and customize different purchase options, defining the benefits and conditions of each.

  - **Payment Integration:** Secure integration with payment gateways for processing transactions.

  - **Plan Management:** Users can view, upgrade, downgrade, or cancel their purchase plans.

  - **Renewal Reminders:** Automated reminders for plan renewal or expiration, ensuring continuous service without interruption.

Streamlines booking processes.

Ensures timely and accurate information.

4.1.4 USER PROFILE MANAGEMENT:-

Overview:

In the User Profile Management module, users can manage their personal details such as their name, email ID, and preferences. This setup ensures that critical user information remains accurate and secure, while still allowing users some control over their profiles. They can also log out or delete their account if needed.

Features:

1. **Profile Customization:** Users can update their personal information, such as name, email, and shopping preferences.

2. **Order Tracking:** Users can track their past purchases, ongoing orders, and delivery status.

3. **Payment Management:** Users can view their active payment methods, manage payments, and update billing information.

4. **Security Settings:** Provides options for password management, two-factor authentication, and data privacy settings.

5. **User Dashboard:** A personalized dashboard displaying key metrics, recent orders, and product recommendations.

4.2   USE CASE DIAGRAM

A use case diagram is a visual representation in UML (Unified Modelling Language) that illustrates the interactions between actors and a system or software application. It is used to depict the various ways users or external entities can interact with the system and the specific functionalities or use cases it offers.
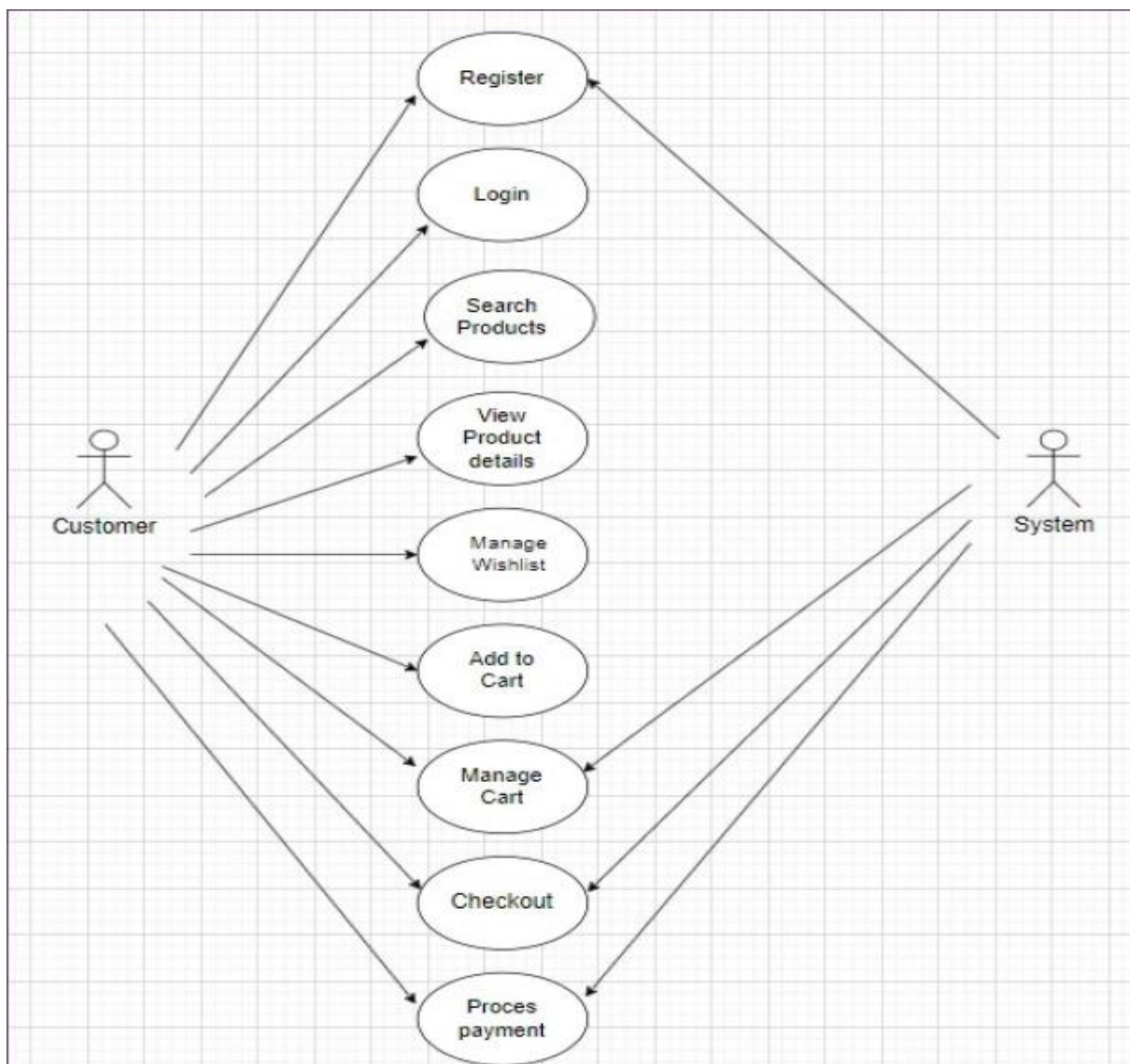
Fig. 4.2. Use Case Diagram

CHAPTER 5
CONCLUSION AND FUTURE WORK

6.1 CONCLUSION

1. The successful implementation of this application not only facilitates the growth of a global toy marketplace but also ensures that customers have access to a wide range of products and services, regardless of their location or time constraints. The application's comprehensive and user-centric design positions it as a powerful tool for both shoppers and retailers, enhancing the shopping experience and streamlining product management.

2. The Toy Store application represents a significant advancement in how toys are sold, managed, and experienced in the digital age. By integrating various modules such as Product Management, Purchase Plan Management, Retailer Management, User Profile Management, and Admin Management, the application offers a holistic and personalized experience for users and retailers alike. It addresses the limitations of existing systems by providing enhanced accessibility, personalization, and interactivity, all while maintaining a high standard of product quality and customer engagement.

3.3 FUTURE WORK

Virtual Reality (VR) Integration:

- **Immersive Shopping Experience:** Incorporate VR to create an immersive shopping environment, allowing users to virtually explore toy displays and interact with products as if they were in a physical store.

Accessibility for Users with Disabilities:
- **Compliance with Accessibility Standards**: Ensure the platform adheres to accessibility standards (e.g., WCAG) to make it usable for everyone, including those with visual, auditory, or motor impairments. This includes features like screen reader compatibility, keyboard navigation, and alternative text for images.

CHAPTER 7

APPENDIX I
SCREENSHOTS

Fig. A.2.1. Main Page
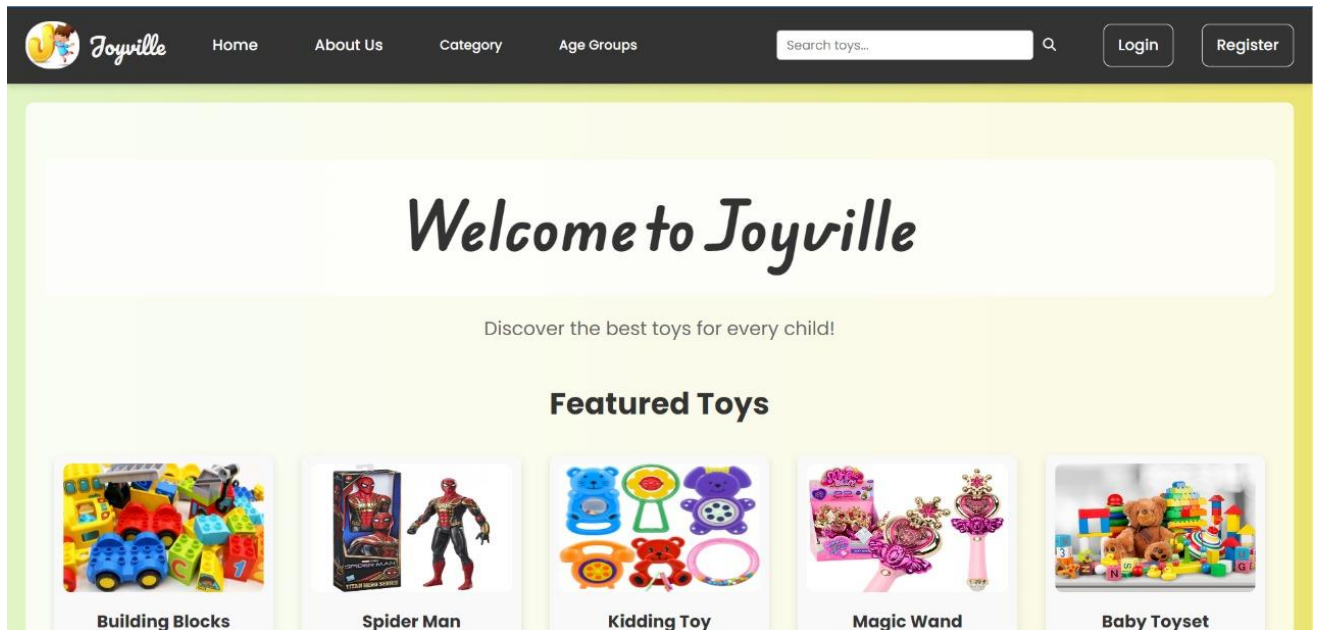
Fig. A.2.2. Admin Login
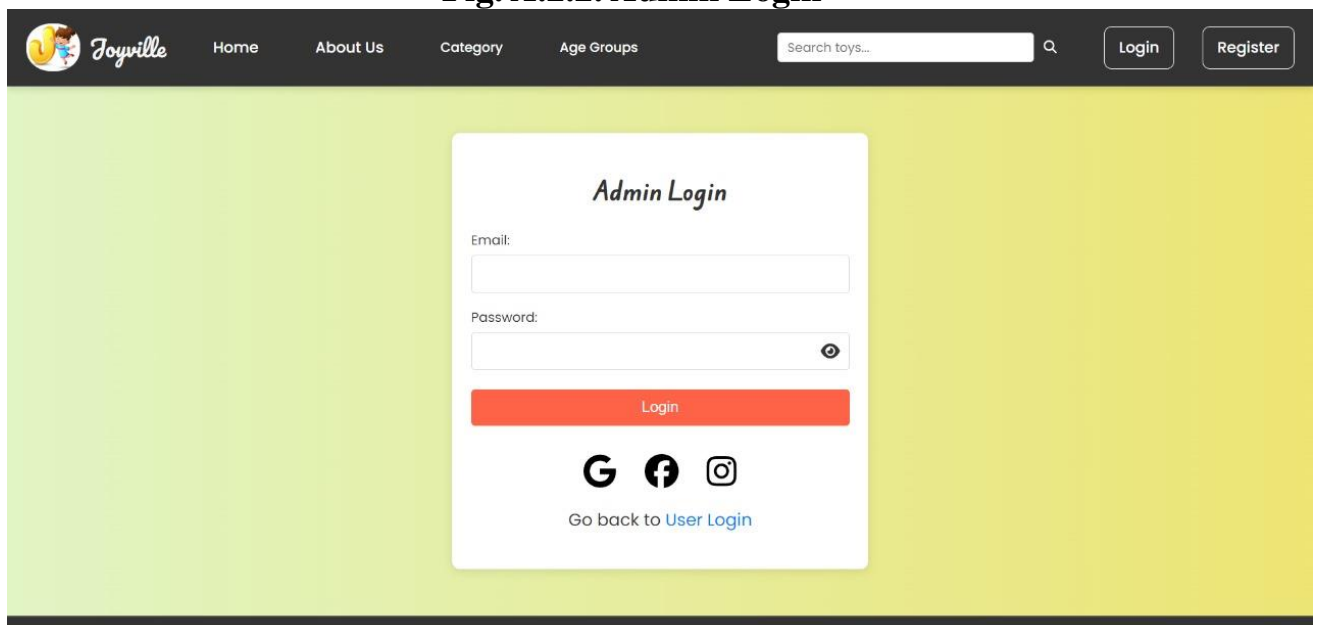
Fig. A.2.3. Admin Dashboard
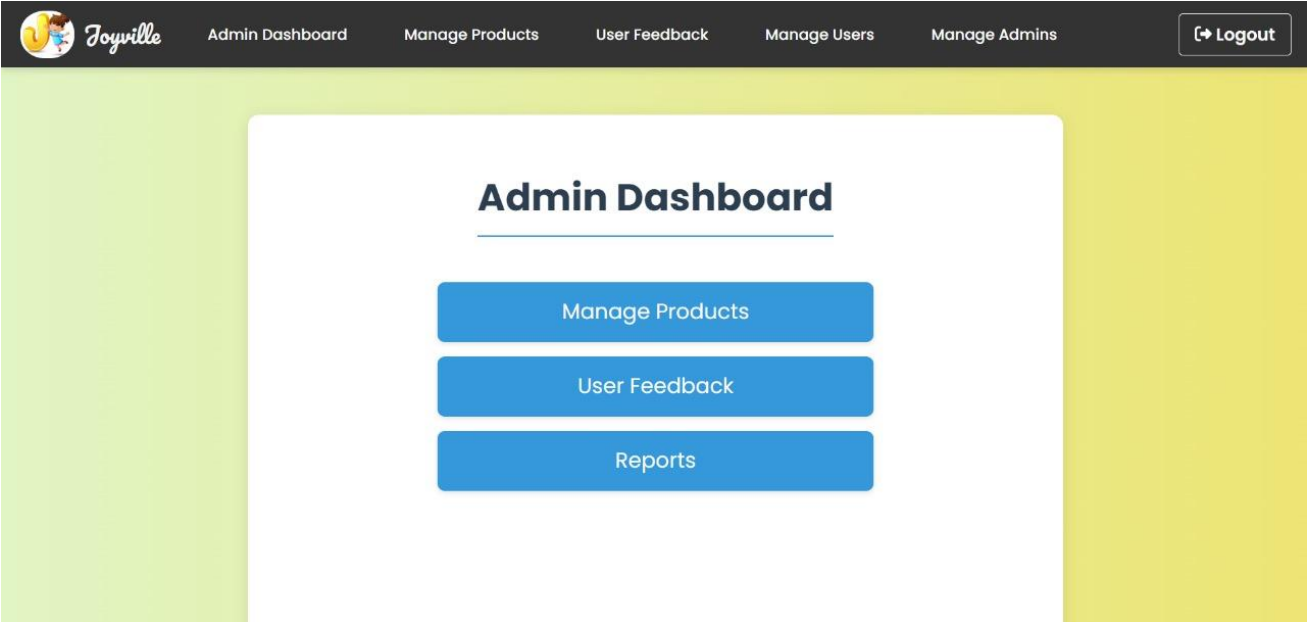
Fig. A.2.4. Admin Product Manager
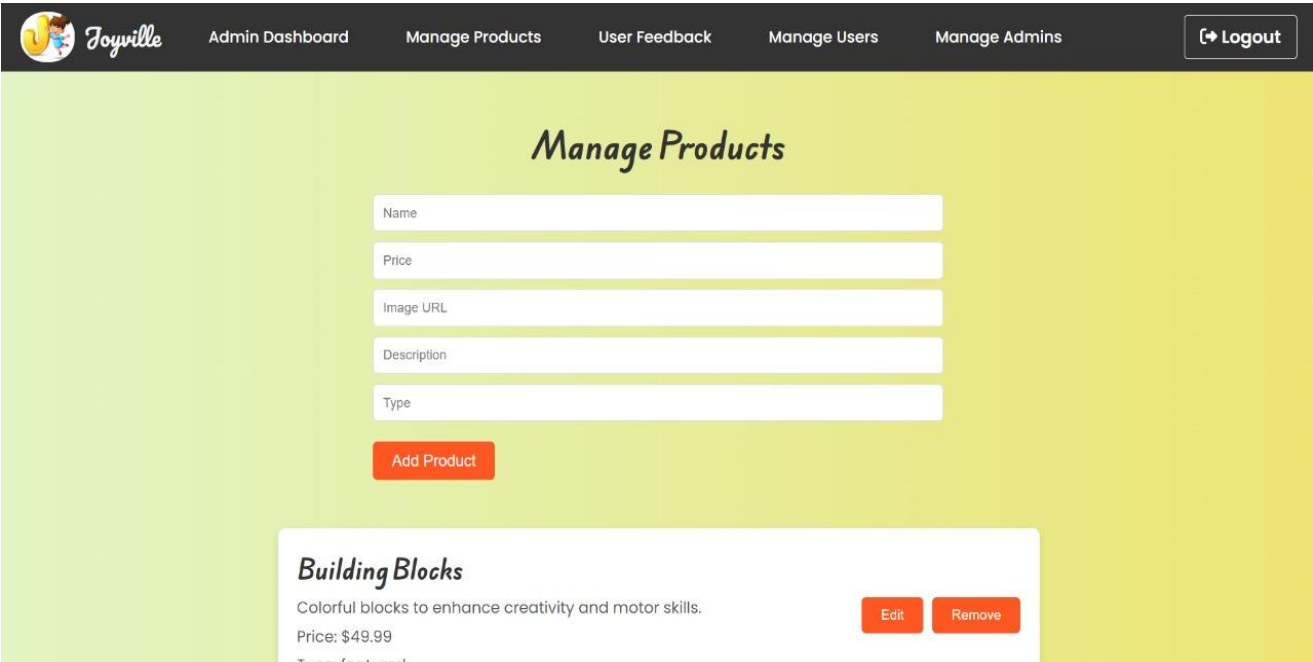
Fig. A.2.5. Admin's User Manager

Fig. A.2.6. Admin Manager

Fig. A.2.7.User Registration

Fig. A.2.8.User Login

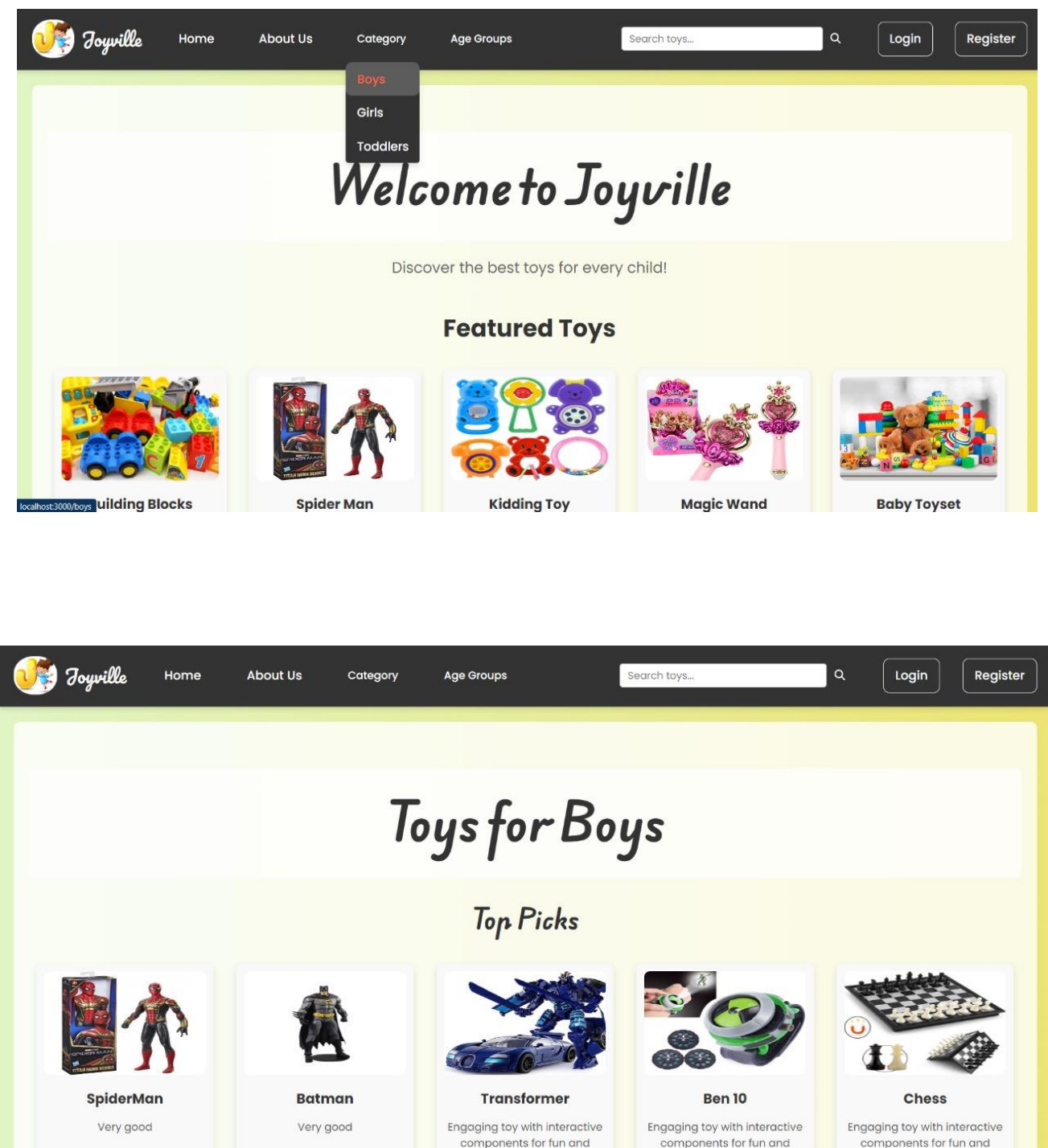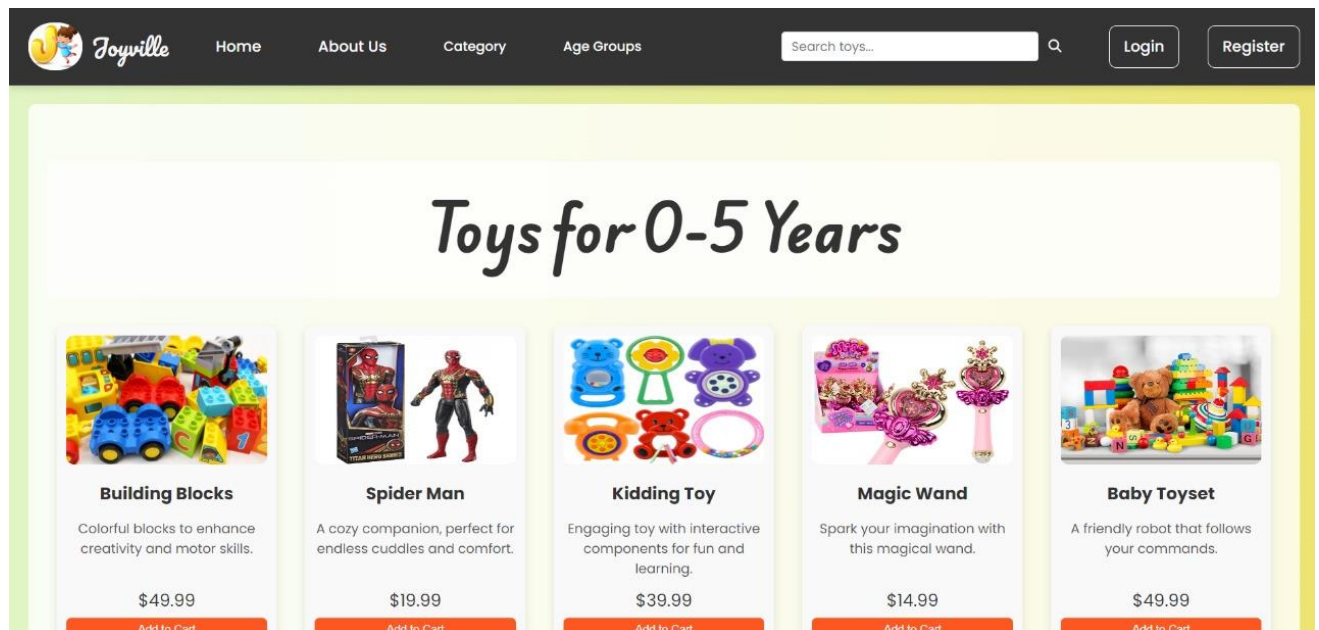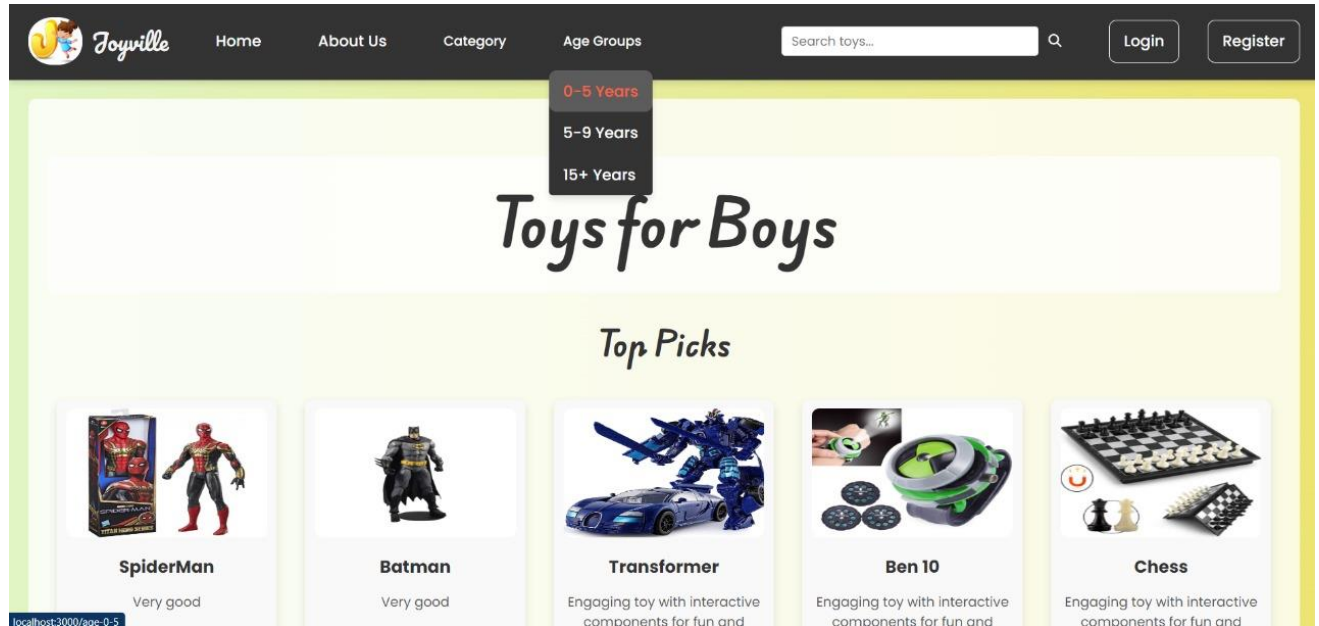**Fig. A.2.7. Toys Category**
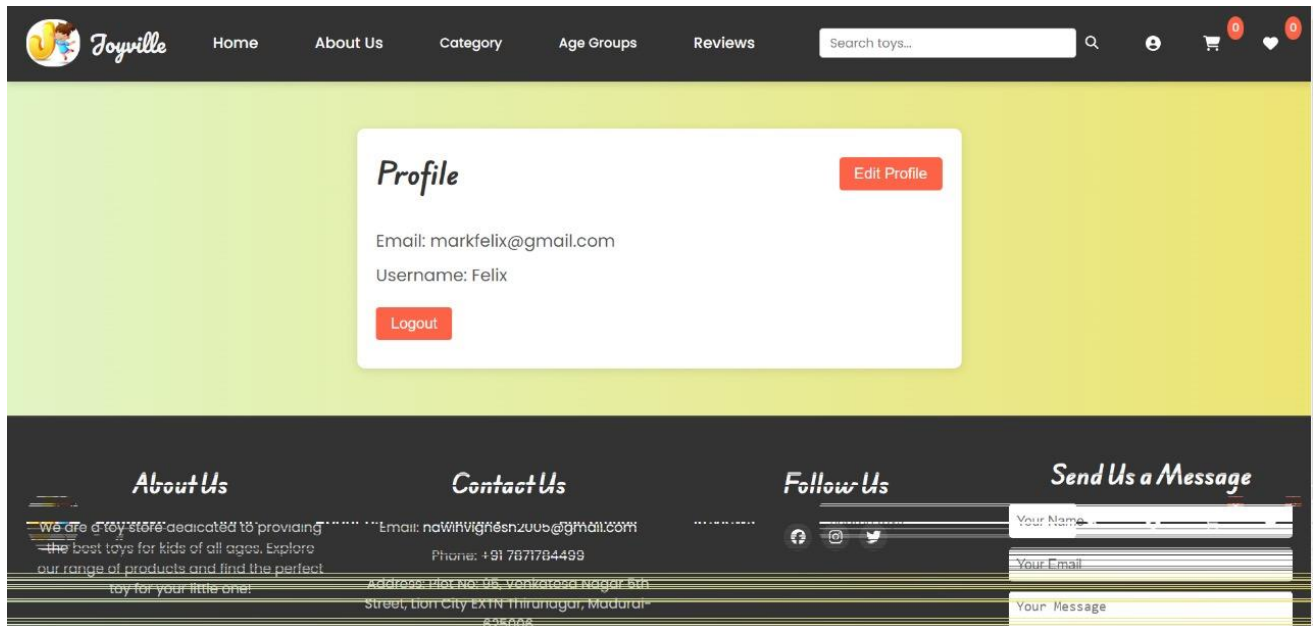
Fig. A.2.8. Age groups
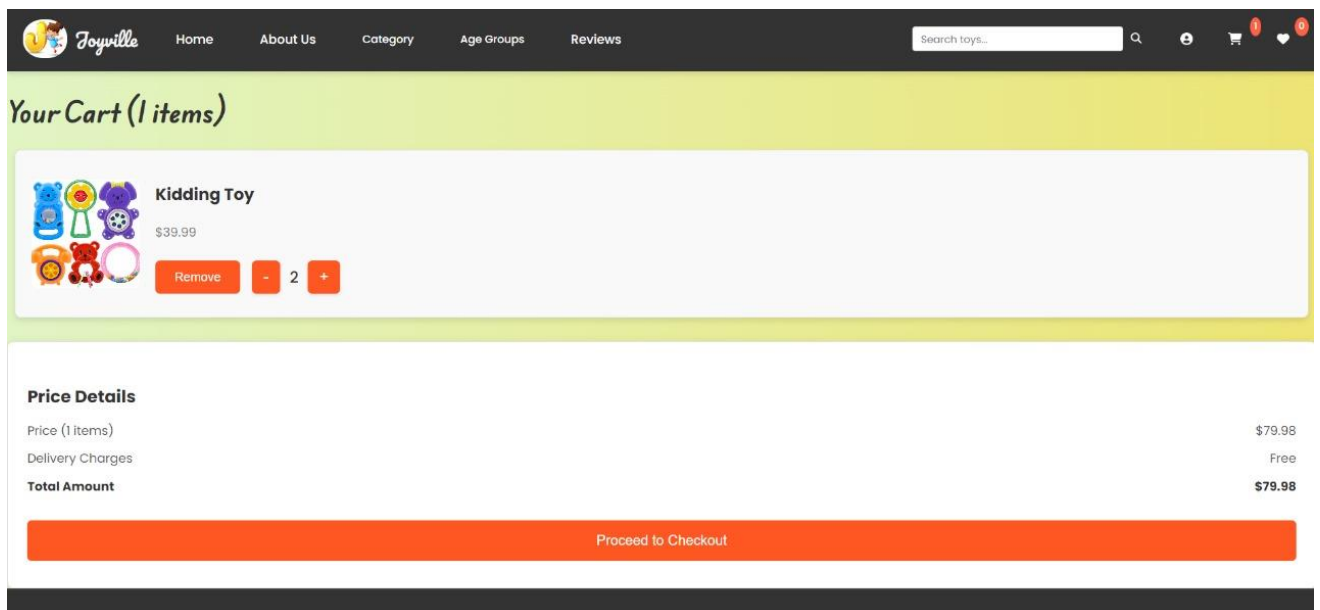
Fig. A.2.9. User Profile
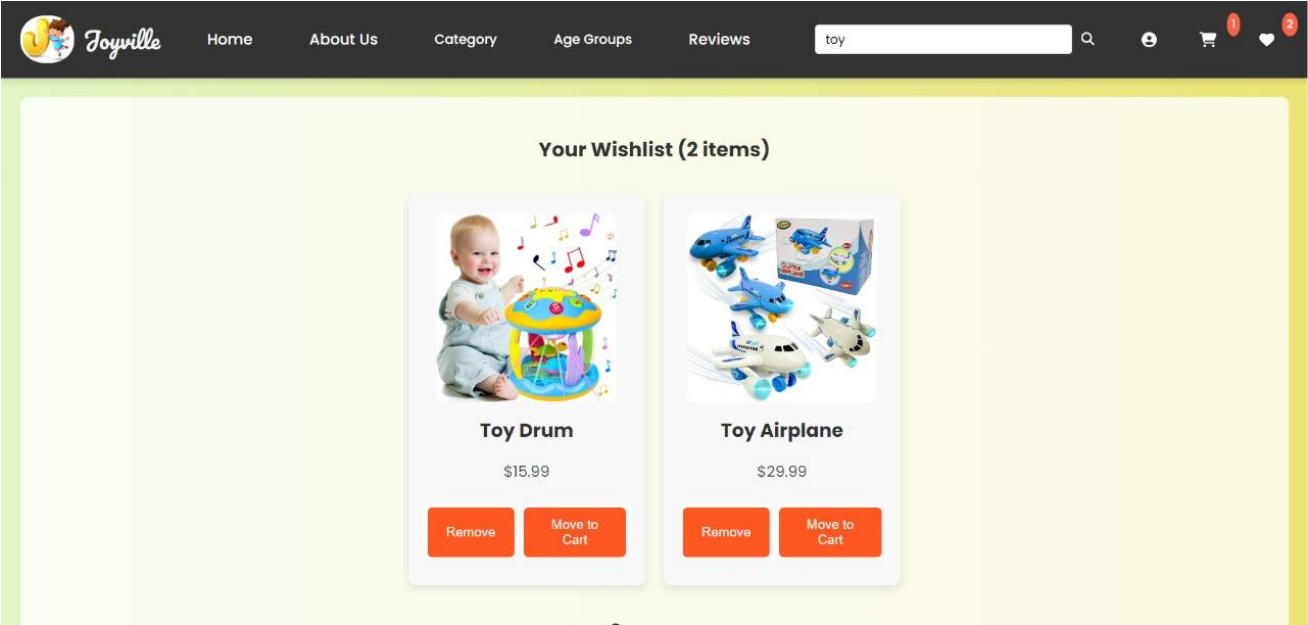

Fig. A.2.10. Cart Page

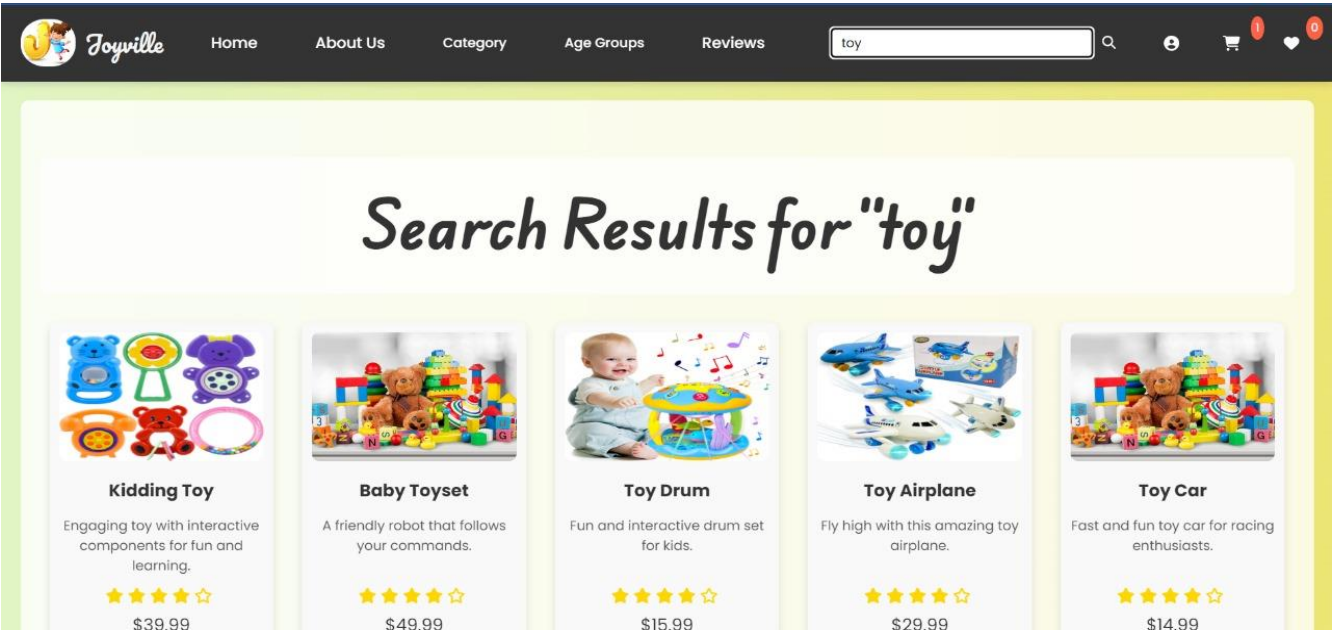**Fig. A.2.12. Wish List Page**

Fig. A.2.12. Search Functionality

Fig. A.2.12. Payment Page

Search toys...

Payment

Total Amount: $39.98

Shipping Address

Full Name

Street Address

City

State

Zip Code

Country

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